

ART. XX. NOTES ON A COLLECTION OF AMPHIBIANS
AND REPTILES FROM NEW KENT COUNTY, VIRGINIA

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From May 10-30, 1938, the senior author made a collection of reptiles and amphibians on the property of Mr. W. R. Shackleford, near Lanexa, New Kent County, Virginia, which he donated to the Carnegie Museum. There are 231 specimens, representing 33 species, in the collection.

The area in which the collection was made is a peninsula at the southern end of New Kent County, bounded on the north by the Chesapeake and Ohio Railroad, on the west and southwest by the Chickahominy River, and on the east and southeast by Diascund Creek. This peninsula is on the Atlantic Coastal Plain about forty miles east of the Fall Line. The northern end is a plateau which drops off to the river level in three terraces, the Wicomico, Chowan, and Pamlico. The center portion of each terrace is cleared and cultivated but the remainder of the area is wooded. Pine, American Holly, Swamp Red Oak, Beech, and Sweet Gum are the principal trees on the higher portions of the peninsula, Cypress replacing them in the lower sections. A broad marshy zone, covered with Spatter-dock (*Nymphaea*), separates the land from the open water of the streams and a carpet of *Sphagnum* covers the damper parts of the region.

All of the colors which we have capitalized in this paper are taken from Ridgway's "Color Standards and Nomenclature."

We wish to acknowledge our thanks to Mr. M. Graham Netting and Dr. E. R. Dunn for their criticisms of this manuscript and also to Mr. W. R. Shackleford, of Newport News, Virginia, for his many courtesies to the senior author during his stay at Lanexa.

CAUDATA

SALAMANDRIDÆ

1. *Triturus viridescens viridescens* Rafinesque 1 (CM 13202), May 10-14.

PLETHODONTIDÆ

2. *Hemidactylium scutatum* (Schlegel) 1 (CM 13203), May 10-14.
3. *Plethodon glutinosus* (Green) 4 (CM 13204-07), May 27.

These specimens exhibit a marked concentration of large white spots along the sides of the body. Only a few flecks of white are visible dorsally.

Two of the series were secured in a rotted, standing tree; the other two were found beneath a log.

SALIENTIA

PELOBATIDÆ

4. *Scaphiopus holbrookii holbrookii* (Harlan) 2 (CM 13208-09), May 27.

During the day (May 27), about seven egg masses, which appeared to agree with published descriptions of the eggs of this species, were observed in a small rain pool, approximately four by fifteen feet, in an orchard. Rain had fallen throughout most of the previous night. The orchard pool was visited at 10:30 P.M., on the night of May 27 but specimens were neither seen nor heard. However, two specimens were secured about one fourth of a mile away in company with *B. w. fowleri*.

BUFONIDÆ

5. *Bufo woodhousii fowleri* Hinckley 33 (CM 13210); 6 males, 10 females, 17 immature.

This series exhibits wide variation in both color and dorsal markings. Four specimens were obviously reddish in life with red warts, a condition much less frequently observed in *fowleri* than in *americanus*. One subadult female is abnormal in lacking all pigment except black. The ventral skin is so transparent that the pinkish cast of the underlying tissue is plainly visible, which is in sharp contrast to the pronounced cream color of the ventral surfaces of normal individuals. The ground color of the back is pale gray although the dorsal spots resemble those of normal specimens. The majority of the specimens

are immaculate beneath except for a pectoral spot. The males have black throats, and four of the six specimens are much darker dorsally than any other specimens in the series. A narrow mid-dorsal light line is present in nearly all specimens.

The following field notes are of interest: "May 23, 1938—In the plowed field here specimens of *B. w. fowleri* are very abundant. During the day they may sit in the openings of their burrows, but if it is rainy or cloudy they come out in abundance. May 27, 1938—*B. w. fowleri* is calling in loud chorus tonight for the first time since I have been here. Previously, isolated individuals or small groups have been heard but tonight they seem to be everywhere."

HYLIDÆ

6. *Acris gryllus* (Le Conte) 17 (CM 13211).

These specimens are tentatively referred to *gryllus*. Most of the individuals have unbroken femoral stripes and rather roughened skin. The webbing does not extend to the disks of the toes.

7. *Hyla cinerea cinerea* x *evittata* 17 (CM 13212-16).

We agree with Dunn¹ that the Green Tree Frogs from this area are intermediate between *cinerea* and *evittata*. Of the seventeen specimens at hand one has the stripe extending to the groin, eight have a stripe to midbody, three have a vestige anteriorly, and five are without a lateral stripe. In those which have a stripe to midbody the posterior portion is frequently indistinct. We have noted also that both tibial and foot stripes are much less sharply defined in the Virginia specimens than in northern Florida *cinerea*.

These frogs were abundant in the large marsh where many specimens were found on the leaves of Spatter-dock. Typical *cinerea* occurs in similar situations in Florida. Occasional calls were heard from early morning until 11 P.M., except during cool weather, but the largest choruses were recorded from shortly before sunset until shortly after sunset, following warm rains in the afternoon.

8. *Hyla versicolor versicolor* Le Conte 2 (CM 13217-18), males, May 27.

These were found on branches of trees more than fifteen feet from the ground.

¹ Dunn, Emmett R. *The Status of Hyla evittata* Miller. Proc. Biol. Soc. Wash., 50: 9-10, 1937.

RANIDÆ

9. *Rana catesbeiana* Shaw 6 (CM 13219-24), 2 adult females and 4 juveniles.
10. *Rana clamitans* Latreille 27 (CM 13225).
11. *Rana palustris* Le Conte 4 (CM 13226-29), May 10-14.
12. *Rana sphenocéphala* Cope 7 (CM 13230-36) New Kent Co., near Lanexa. May 10-14. 2 (CM 13237-38) Norfolk Co., 6 miles south of Deep Creek. May 30.

These specimens are in general agreement with Florida specimens of *sphenocéphala*. The head lengths (snouts to posterior border of tympanum) enter the total lengths (snout to anus) from 2.5 to 2.9 times, average 2.67. These figures, even without additional confirming characters, would justify the use of *sphenocéphala*, as defined by Kauffeld,² for the series. Two specimens lack distinct tympanic spots, but the junior author has seen Florida *sphenocéphala* in which these spots were indistinct.

TESTUDINATA

KINOSTERNIDÆ

13. *Sternotherus odoratus* (Latreille) 1 (CM 13249), May 10-14.
Several additional specimens were seen, some away from the water.
14. *Kinosternon subrubrum subrubrum* (Lacépède) 10 (CM 13239-48).

The head markings of these specimens vary from numerous amoeboid spots on some specimens to distinct lines on others. Subsequent to May 20 specimens were found some distance from water, one even occurring under a piece of sheet metal in a corn field, but no evidences of egg-laying could be found.

TESTUDINIDÆ

15. *Clemmys guttata* Schneider 3 (CM 13250-52), May 27-28.
These specimens exhibit greatly reduced temporal spots which are

² Kauffeld, Carl F. The Status of the Leopard Frogs, *Rana brachycephala* and *Rana pipiens*. *Herpetologica*, 1, no. 3: 84-87, 1937.

oval in shape and 2 x 4 mm., or less, in size. The yellow spots on the carapace are smaller and less conspicuous than in northern specimens.

The specimens were found in wooded marshy areas in which *Sphagnum* occurred.

16. *Terrapene carolina* (L.) 6 (CM 13256-61); 4 adults and 2 immature.

One of the young specimens was found in a marsh pool in company with *Clemmys guttata*.

17. *Chrysemys picta* (Schneider) 3 (CM 13253-55), 2 females and 1 juvenile.

Plastral markings are present posteriorly on both of the females but the juvenile specimen has the plastron immaculate. The young specimen has the dorsal stripe complete and there are evidences of a dorsal stripe in both of the females.

May 16 was a clear, sunny day, and about 1:00 P.M., a female was found just as she had finished laying. She was filling the nest hole, which was about twenty feet from the water, with sand. This nest, which contained five eggs, was about an inch wide at the top and about three inches wide at the bottom. The next day another female was found filling her nest, which also contained five eggs. During the week several nest holes without eggs were found, as if the site had proved unsatisfactory because of the presence of roots or stones. In all of these nests there were indications that the turtle had moistened the soil. Those in clay were damper than those in sandy situations. One turtle, discovered in the process of digging her nest, was using her right hind foot for scooping out the sand.

18. *Pseudemys rubriventris rubriventris* (Le Conte) 2 (CM 13262 and Univ. of Florida 1820), adult females. 14 (CM 14022-29 and Univ. of Florida 1821), hatchlings.

In life UF 1820 had a plastron of Light Ochraceous-Buff interspersed with Rainette Green, and without black plastral markings. There was only a slight tinge of orange on the plastron whereas a red plastron is characteristic of *P. r. bangsi*. The lower jaw is serrate with a tooth at the symphysis and the upper jaw is notched at the center with a cusp on each side of the notch. Several of the dorsal scutes are abnormally formed and misplaced. This specimen measures 282 mm. in length, 103 mm. in height, and 200 mm. in maximum width.

CM 13262 had a plastron of Light Ochraceous-Buff chiefly interspersed with Rainette Green. The anterior portions of the carapace and plastron were tinged with Apricot Orange. The gular and humeral scutes have black markings on their anterior borders and the dorsal scutes are typical in their formation. The lower jaw is serrate with a tooth at the symphysis; the upper jaw with a median notch between two cusps. This turtle measures 280 mm. in length, 102 mm. in height, and 195 mm. in maximum width.

On May 18, during a steady rain, a female was found at her nest about 11:00 A.M. She had one foot in the hole when first noticed. The presence of the observer apparently caused a cessation of digging for during the succeeding twenty minutes the female remained motionless at the nest. She was then captured and the nest, which contained twelve eggs, was found to be oval in shape with a width of about one and one-half inches at the opening spreading to about four inches underground. This nest was about fifty feet from the edge of a pond.

On May 19, a female was found at her nest as she was filling it with sand. This nest, which was similar to that found on the previous day, contained thirteen eggs and was about four and one-half feet from a pond. As the turtle had fresh duckweed on its shell it probably came from the pond and not from nearby Diascund Creek.

The eggs of these two females were placed in a can of dirt and fifteen of them hatched shortly prior to September 1, the date on which the senior author returned to his home. These young have plastrons ranging in color from Light Ochraceous-Buff to bright orange red. Plastral markings are present and are usually dispersed over the greater portion of the plastron, most individuals having black markings evident on each plastral scute. These markings consist of asymmetrically placed spots and broad bands along the sutures. There is a band of black on the bridge. The ground color of the soft parts is dark green and the markings present are greenish yellow. There are from five to eight stripes between the supra-temporal stripes in the post-orbital region; the auxiliary stripes on the side of the head are distinct. The post-femoral pattern consists of numerous small, horizontal bands and small dots which are sometimes connected to form perpendicular stripes. A tooth is present at the symphysis of the lower jaw and the upper jaw has a median notch between two weak cusps.

Comparison between young of *Pseudemys r. rubriventris*
and young of *P. nelsoni*.

*nelsoni**rubriventris*

Bridge immaculate or with only a few spots present.

A heavy black band on the bridge.

Plastral markings absent or restricted to the region of the median suture.

Plastral markings spread out over plastron, some usually present on each scute.

One to three stripes present between the supra-temporal stripes in the post-ocular region.

Five to eight stripes present between the supra-temporal stripes in the post-ocular region.

Post-femoral pattern composed mainly of two or three broad yellow bands.

Post-femoral pattern composed of several faint, horizontal bands and numerous spots.

Ground color of soft parts dark black.

Ground color of soft parts very dark green.

Auxiliary stripes on the side of the head indistinct or absent.

Auxiliary stripes on the side of the head distinct.

Nine nests were found on May 24 which had been opened by predators and the eggs eaten. Six of these were nests of *Chelydra serpentina* and three were those of *Pseudemys*.

SQUAMATA

SAURIA

IGUANIDÆ

19. *Sceloporus undulatus fasciatus* (Green) 14 (CM 13300-13), 9 males and 5 females.

The number of dorsal scales in this series, counted on a median line from the interparietal to a point just above the posterior borders of the hind legs, ranges from 37 to 43, with an average of 40.28. The number of femoral pores varies from 13 to 17, only one specimen having the count of 17.

During the last week of the month several females were seen with mud and dirt on their heads, and their abdomens deflated, possibly indicating that they had just completed laying.

TEIIDÆ

20. **Cnemidophorus sexlineatus sexlineatus** (L.) 11 (CM 13289-99).

On clear, warm days these lizards were to be found along the sandy road and in the borders of the fields.

SCINCIDÆ

21. **Leiolopisma unicolor** (Harlan) 4 (CM 13285-88), May 10-17.

Two of these were found under the bark of fallen logs. The remainder were found under leaves. In the leaves along the western edge of the woods they were particularly abundant. In the late afternoon as the last rays of the sun touched this strip of weeds and grass they could be seen moving about over the leaves. When disturbed they would seek shelter under leaves and remain motionless.

22. **Eumeces fasciatus** (L.) 11 (CM 13314, 13317, 13320-26, 13329-30), 4 males, 5 females, and 2 immature.

Scale rows of this series vary from 28 to 31, occurring in the following order of frequency: 28, 1; 29, 2; 30, 6; and 31, 2. Seven specimens have a supralabial count of 7-7, three have a count of 7-8, and one specimen has the count 8-8. The specimen (a female) which has the eight supralabials on each side also has a transverse suture on the anterior portion of the frontal scale, thus forming an extra scale between the frontal and the prefrontals. All of these specimens have two postlabials which are much smaller than the primary temporals. In life a female had a dorsal stripe of Olive-Buff, and the tail was Pale Olive-Gray. All of the females and immatures have five stripes.

Since the senior author did not distinguish the species of *Eumeces* in the field the following notes may apply, in part, to the next two forms:

"Most commonly found on exposed logs and trees in the vicinity of water. On damp, cold days they could be found under the bark of both standing dead trees and fallen logs, and under bark, boards, and stones on the ground."

23. **Eumeces inexpectatus** Taylor 5 (CM 13315-16, 13319, 13327-28), 3 males, 1 female, and 1 young.

All of these specimens have thirty or more scale rows in the middle of the body. Two of the males and the juvenile have thirty scale rows, one male has thirty-one scale rows, and the female has thirty-

two. The three males have a supralabial count of 7-7, while the young and the female have an extra supralabial present on one side. In life the dorsal stripe of the female was Salmon-Buff, and the posterior portion of the tail was Dark Heliotrope Gray. There are seven stripes present on the female and the young.

The most convenient character for separating this species from *fasciatus* and *laticeps* is the presence of uniform sized subcaudals at the base of the tail in *inexpectatus*. Both *fasciatus* and *laticeps* have the median row of subcaudals noticeably enlarged for the entire length of the tail.

The northernmost record of this species listed by Taylor (1935, Revision of Genus *Eumeces*: 233) is Norfolk, Va. Consequently, the present specimens extend the range of *inexpectatus* approximately fifty miles northwestward along the Atlantic Coastal Plain.

24. ***Eumeces laticeps*** (Schneider) 1 (CM 13318), subadult male.

This specimen has 32 scale rows, supralabials, 8-8, the sixth beneath the eye, median row of subcaudals enlarged, and a single postlabial which is as large as the primary temporal. There is a small scale above the posterior end of the postlabial.

SERPENTES

COLUBRIDÆ

25. ***Carphophis amoena amoena*** (Say) 6 (CM 13279-84).

All six specimens are typical of *amoena* with the internasals and prefrontals separate. They are brown above with the light color of the ventrals extending onto the first or second row of dorsal scales.

These were found to be fairly common in open fields, and in the edge of the woods, usually in small, well rotted, partially buried pieces of decayed wood. One was found under the bark of a log and another under a board. The remainder were taken from pieces of fallen branches from one to two feet in length and from three to five inches in diameter.

26. ***Abastor erythrogrammus*** (Daudin) 1 (CM 13267), male.

The specimen at hand has 19 rows of smooth scales, 158 ventrals, 49 caudals, 7 supralabials, and the anal divided. There are 6 infralabials on the left side and 8 on the right side. Local residents say that this is a common snake and that many of them are plowed up in a

field of loose, sandy soil which is surrounded by marsh. They call this species the "Sand Snake" or "Sand Hog."

27. *Opheodrys aestivus* (L.) 1 (CM 13264), female.

This specimen has 158 ventrals and 133 caudals.

28. *Coluber constrictor constrictor* L. 3 (CM 13272-74).

One specimen was found to have its stomach full of June Bugs (*Phyllophaga*) and another contained an adult *Peromyscus leucopus* subsp.

29. *Elaphe obsoleta obsoleta* (Say) 4 (CM 13275-78), 2 adults, 2 immature.

One of the young, 351 mm. in length, which was "shot out" of a tree about twenty feet from the ground, contained an adult *Sceloporus* in its stomach. The other young specimen, 238 mm. in length, during the second week in captivity, ate an adult *Eumeces*.

30. *Natrix sipedon sipedon* (L.) 2 (CM 13270-71), adult males.

This species was common in a small pond and in Diascund Creek.

31. *Natrix taxispilota* (Holbrook) 2 (CM 13268-69), adult males.

This species was found only in the vicinity of Cypress trees and stumps along the Chickahominy River, a stream much larger than Diascund Creek.

32. *Storeria dekayi* (Holbrook) 1 (CM 13263), immature.

This specimen was found under trash near buildings.

33. *Virginia valeriae valeriae* Baird & Girard 2 (CM 13265-66), 1 male, 1 female, May 10-17.

The female has 15 scale rows with faint keels posteriorly, 121 ventrals, and 28 caudals. The male has 15 rows of scales with faint keels posteriorly, 112 ventrals, and 33 caudals.

These two specimens were taken under sticks in a wooded pasture. This woods is little more than a thicket but pasturing has kept it clear underneath.